DOCUMENT RESUME

ED 126 374 CG 010 660

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TITLE The Relative Effectiveness of Programmed Instruction and Cued-Videotape Modeling, With and Without Behavioral Feedback, on the Acquisition and Use of Interview Skills.
PUB DATE Apr 76
NOTE 29p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, California, April 19-23, 1976)

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS Behavioral Science Research; Behavior Patterns; *Counselor Training; *Feedback; Interviews; *Learning Theories; Programed Instruction; *Reinforcement; Research Projects; Role Models; *Skill Development; *Teaching Methods

ABSTRACT

This study examined the effects of two different training techniques, with and without behavioral feedback, on the acquisition and use of four interviewer behaviors: head nods, minimal verbal stimuli, probes, and confrontations. Sixty subjects classified as field-independent or field-dependent were randomly assigned to one of five experimental treatments: (1) programmed instruction, (2) programmed instruction and feedback, (3) cued-videotape modeling, (4) cued-videotape modeling and feedback, and (5) no-treatment control. Significant multivariate results were found for training methods only and followed by post-hoc multiple discriminant analysis procedures. Results were interpreted as suggesting that behavioral feedback in combination with the instructional methods was more important in teaching the confrontation, and to a lesser extent, probing skills than the same instructional methods without feedback. Implications for training and recommendations for further research are discussed. (Author)

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THE RELATIVE EFFECTIVENESS OF PROGRAMMED INSTRUCTION AND CUED-VIDEOTAPE MODELING, WITH AND WITHOUT BEHAVIORAL FEEDBACK, ON THE ACQUISITION AND USE OF INTERVIEW SKILLS

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Paper to be presented at the annual meeting
of the American Educational Research Association,
April, 1976, San Francisco, California

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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The Relative Effectiveness of Programmed Instruction and Cued-Videotape Modeling, With and Without Behavioral Feedback, on the Acquisition and Use of Interview Skills

March 1, 1976

The present investigation is based on the premise that counselor education programs have neglected systematic investigation concerning the nature and comparative effectiveness of its teaching methods. Recent research in counselor training has been largely based on research strategies (i.e., treatment-no-treatment mode) which perpetuate distinctions between training programs by maximizing the occurrence of "positive" outcomes (Blocher, 1967; Edwards & Cronbach, 1952; Krumboltz, 1967; Lauver & Froehle, 1970; Paul, 1967; Sprinthall, 1967; Thoresen, 1969). These investigations neglect the question of comparative effectiveness, or as it has been called by some "the challenge of accountability"--what works, with whom, and under what conditions (Horan, 1972). In view of the increasingly limited resources available to counselor educators, comparative studies are needed to assess whether the expense of the training procedure is worth the instructional benefits gained.

The purpose of this investigation was to compare the effectiveness of programmed instruction and cued-videotape modeling, with and without the addition of behavioral feedback, as training techniques to induce behavior change among field independent and field dependent interviewers.

Carr (1962) has summarized the principles of learning proposed by Skinner (1954) and Gilbert (Note 1) that support the utility of programmed instruction as an important instructional method. Of particular relevance to the present investigation are the principles which suggest that learning takes place most rapidly if: (1) the student is actively

engaged with the subject matter; (2) immediate knowledge of results is given for each response; and (3) the learning situation be designed so each student can proceed at his own pace.

Following his extensive review of the literature on programmed instruction, Bullmer (1970) concluded: "while a great deal of research involving the use of programmed instruction for many diverse subject matter areas is presently available, little such research is available from the field of counselor . . . education" (p. 32). Since Bullmer's (1970) review there have appeared a number of investigations which have established the efficacy of using programmed instruction to increase the interpersonal perceptual skills of counselor trainees (Bullmer, 1972; DiMattia & Zimmer, 1972; Forge, 1974; Saltmarch, 1973). It is noteworthy here that DiMattia and Zimmer (1972) found programmed instructions superior to a videotape modeling presentation in teaching the discrimination of affective cues to undergraduate trainees. In discussing these results, DiMattia and Zimmer speculate that the videotape presentation was a passive training technique, not requiring subjects to actively interact with the training material. They concluded by suggesting the need for further research directed toward the efficacy of programmed instruction in teaching other interviewer skills than discrimination of client affect, and comparing the use of programmed instruction with other training devices.

The utility of modeling as a method of inducing behavior change has been well documented in numerous investigations (Bandura, Grusek, & Menlove, 1967; Lovaas, Berberich, Perloff, & Schaeffer, 1966; Mischel & Liebert, 1966; Bandura, Blanchard, & Ritter, Note 2). Modeling procedures have been established as an effective and rapid method for teaching new skills and have been successfully applied to behaviors, situations, and

populations relevant to training members of the helping professions (Dalton, Sundblad, & Hylbert, 1973; Goldstein, Cohen, Blake, & Walsh, 1971; Payne, Weiss, & Kapp, 1972; Perry, 1975).

The effectiveness of modeling procedures have been enhanced by the addition of cues during exhibition of criterion behaviors (Claus, Note 3; McDonald & Allen, Note 4). The inclusion of cueing in the present study, which focuses attention on the relevant model behaviors, is consistent with those who stress the importance of discrimination training, prompting, and cues in learning situations (Angell & Lumsdaine, 1961; Cook & Kendler, 1950; Sheffield & Maccoby, 1961; Wulff & Kraeling, 1961).

In summary, the literature reviewed supports the efficacy of employing programmed instruction and cued-videotape modeling as instructional techniques to teach basic interviewing skills. Further, there appears to be a need to compare the effectiveness of the two techniques in order to assess the relative contributions of each in teaching these skills.

Of central importance to this investigation, and a feature distinguishing it from earlier investigations studying programmed instruction and modeling training techniques, was the inclusion of a feedback component. Carkuff (1972) states that specificity of feedback is one of the principle elements contributing to constructive behavior change. Palis and Ruzicka (1974) suggest that the more precise the description of the interviewer's behavior during the interview, the more the interviewer can utilize the information to analyze and make judgments regarding the appropriateness of his behavior. Matarazzo (1971) indicates that feedback can give direction and stimulate changes

in behavior.

The counselor training literature abounds with examples where various feedback techniques have been employed. This includes the use of videotapes (Kagan, Krathwohl, & Miller, 1963); audiotapes (Amp, 1953); supervisory sessions (Arbuckle, 1965); and role playing (Wiener, 1954). The present investigation was designed to explore the specific effects of written behavioral feedback on the interview behavior of trainees.

Probably the most ardent proponents of employing specific behavioral feedback in the teaching of counseling skills are the behavior analysts. Prominent spokesmen for this view include Krumboltz and Thoresen (1969), Kanfer and Saslow (1965), and Krasner and Ullmann (1965). The behavior analysts would argue that exposing a trainee to specific behavioral feedback will help insure that the trainee will focus on the relevant cues of the stimulus situation and be more likely to modify his behavior in accord with the feedback. Support for the use of written behavioral feedback can be derived from Bondi (1968) and Flanders (1962; 1970), who successfully modified the behavior of student teachers; and Tracy (1969), who demonstrated child rearing practices could be successfully modified using a written feedback procedure.

The inclusion of interviewer cognitive style as an intervening variable in the present study was considered exploratory. Learner characteristics, such as field-independence-dependence, have been found to interact with instructional effectiveness in typical educational environments (Witkin, Note 5). Investigation of this intervening variable is directed toward answering the question of what type of trainee benefits most from what type of instruction?

Selected research literature dealing with instructional variables

provides support for suggesting differential responsiveness of trainees to one mode of instruction over another as a function of field-independence. Support for this notion can be found in studies by Toomey (1972), Thomas (1972), and Koran (1969), who found field-dependent subjects more responsive to modeling instructional procedures. This is consistent with the impressive evidence reviewed by Witkin (Note 5) of the strong social orientation and great social sensitivity of the field-dependent person. In contrast to these findings, field-independent individuals are not as likely to monitor their behavior in terms of external cues (Konstadt & Foreman, 1965); are less likely to submit to authority, preferring instead to impose their own control over social situations (Epperson, 1963; Witkin, 1954); tend to favor either a directive or instructional approach in helping relationships (Pollack & Kiev, 1963); are better able to apply knowledge learned in a laboratory setting to new and novel situations (Grieve & Davis, 1971); and tend to profit more from symbolic (written) than perceptual modeling procedures.

The present study was designed to explore (a) the comparative effectiveness of programmed instruction and cued-videotape modeling, and particularly, (b) the contribution of behavioral feedback in conjunction with these instructional procedures. In addition, the effectiveness of these training methods were investigated in relation to the cognitive style of the interviewer.

METHOD

Subjects

Sixty volunteer female prospective teachers enrolled in undergraduate education courses served as subjects. They ranged in age from 19 to 22 (mean = 20.3). Subjects with prior counseling or

interviewing experience were not included in the study.

Selecting Subjects

As part of a pre-instructional questionnaire, Part I of the Hidden Figures Test (HFT), a measure of field-independence developed by French (1963), was completed by 300 female undergraduate education majors enrolled in courses for prospective teachers. Ninety students who achieved scores on the HFT in either the upper or lower 15 percent of the distribution were asked to complete the Group Embedded Figures Test (Oltman, et al., 1971). Consistent with the female norms reported by Witkin (1971) subjects who achieved scores of 15 or more correct were classified as field-independent (N = 30; mean score = 16.8), while subjects who achieved scores of seven or less correct were classified as field-dependent (N = 30; mean score = 5.1). Only females were employed as subjects due to the consistent sex difference found between males and females on measures of cognitive style (Witkin, 1972).

Interview

All subjects with the exception of those in the control condition read the following instructions:

> The purpose of this brief interviewing experience is to give you some experience and training in the use of selected basic interviewing skills. You will be interviewing a volunteer client who has been screened and selected for this experience. She is coming to the interview with a problem she would like to discuss with someone. You are not expected to have any prior experience, so relax and do the best you can. Your task will be to talk with her for <u>two</u> 15-minute sessions. The sequence of events to be followed by you in the <u>next 45 minutes</u> include:
>
> 1. A brief, <u>15-minute</u> initial interview with the client;
> 2. Followed by a <u>15-minute</u> training session, in which you will be exposed to basic interviewer skills;
> 3. Followed by a second <u>15-minute</u> interview with the same client.

ALL QUESTIONS WILL BE ANSWERED AT THE END OF THIS EXPERIENCE

Subjects in the control condition received the same instructions with the exception that they were instructed to "sit alone and think of anything you would like until the next interview" during the second 15-minute sequence of events.

Use of Coached Clients

Employing coached clients is in accord with the notion of using an "asymmetrical contingency" (Heller, 1972; Jones & Thibaut, 1958), where one of the participants in the interviewing situation (in this case, the client) acts as an experimental accomplice with a fixed operating procedure. Two female graduate students in education were recruited as coached clients and both were given the opportunity to practice their roles during a pilot study. To insure high role fidelity during the present study, the coached clients were observed by the experimenter and all deviations from their described role were pointed out.

Experimental Design and Treatment Conditions

An experimental posttest only design was used (Campbell & Stanley, 1963).

Thirty subjects from each classification of the interviewing variable were randomly assigned to five treatment conditions. The five treatment conditions were the following:

1. *Programmed Instruction.* Subjects were given a brief, programmed instructional manual to complete. The manual for this treatment was adapted from sections of Hackney and Nye's (1973) programmed text, revised to reflect a

more traditional programmed approach and focused on the following interviewer behaviors: minimal encourages to talk (head nods and minimal verbal stimuli), probes, and confrontation. Subjects received a definition, brief explanation, and written examples (symbolic modeling) of each interviewer behaviors. The programmed manual was presented to subjects in three separate sections, each presenting one of the three interviewing skills to be learned (minimal encourages, probes, confrontations). Immediately upon completion of one section subjects proceeded to the section which followed it. The amount of time taken by subjects to complete the programmed manual ranged from 14 to 19 minutes (mean = 16 minutes).

2. *Programmed Instruction and Behavioral Feedback*. This treatment was the same as Programmed Instruction with the single exception that subjects received written behavioral feedback at the end of each section. The feedback notified them of the number of times they used the interview skill during the 15 minute pre-treatment interview. One trained observer viewed the pre-treatment interviews and recorded the frequency of head nods, minimal verbal stimuli, probes, and confrontations. The observer's results provided the basis for the written behavioral feedback presented to subjects. As a reliability check, a second observer periodically made a simultaneous record during pre-treatment interviews. The amount of time taken by subjects to complete the programmed manual with feedback ranged from 14.5 to 20

minutes (mean = 16.5 minutes).

3. *Cued-Videotape Modeling.* Subjects viewed a brief, 16 minute videotape presentation replicating the essential content of the programmed instruction treatments. The videotape program was presented to subjects in three separate sections, with each section focusing on one of the three interview skills to be learned (minimal encourages, probes, confrontation). Specifically, subjects witnessed a narration which included a definition and brief explanation of each interviewer behavior, a visual or auditory "cue" accentuating each critical interviewer behavior, and a perceptual model of each interviewer behavior.

4. *Cued-Videotape Modeling and Behavioral Feedback.* This treatment was the same as Cued-Videotape Modeling with the single exception that subjects received written behavioral feedback after viewing each of the three sections of the videotape. The feedback notified them of the number of times they used the interview skill during a 15-minute pre-treatment interview. The format for presentation of feedback during this treatment was identical to the treatment utilizing programmed instruction with feedback. The amount of time taken to complete this treatment was 16 minutes.

5. *No-Treatment Control.* Subjects in this treatment received no training and were instructed to "sit alone and think of anything you would like until the next interview."

Dependent Variables

The following interviewer behaviors were selected as dependent

variables:

Minimal Encourages to Talk. Operationally defined as (a) the use of interviewer head nods in response to coached client's statements, and (b) the use of interviewer minimal verbal stimuli consisting of one-word phrases such as "Mm-hmm", "Yes", or "I see".

Probes. Operationally defined as (a) simple, compound, or complex sentence containing a subject, verb, and (but not always) a subordinate clause and (b) a sentence introduced with either what, how, why, or when (Barnabei, 1974). Essentially the interviewer's statement asked an open-ended question in the sense that it required more than a minimal one-word answer (Hackney & Nye, 1973, p. 60).

Confrontation. Operationally defined as interviewer use of compound sentences which indicate some kind of discrepancy in the client's message (Hackney & Nye, 1973, p. 95). The compound sentence has two independent clauses, each containing a subject, verb, and (but not always) a subordinate clause (Barnabei, 1974).

> The (interviewer) statement establishes a "you-said-but-look" condition. In other words, the first part of the compound sentence is the "you-said" portion. It repeats a message of the client. The second part of the compound sentence presents the contradiction or discrepancy, the "but-look" of the client message. . . . The first part of the "you-said" portion may not be stated by the interviewer. It may be implied instead, if the clients' discrepancy is obvious (Hackney & Nye, 1973, p. 95).

Measurement of the Dependent Variables

Incidences of head nods were recorded by having one trained observer record the frequency of interviewer head nods, at one-minute intervals, in all post-treatment interviews. Reliability was checked by having another trained observer record head nods from 12 randomly

selected videotaped post-treatment interviews. Incidences of minimal verbal stimuli, probes, and confrontations were recorded, at one minute intervals, by trained observers from randomly presented audio-tapes of the post-treatment interviews. Reliability was checked by randomly selecting 12 of the 15-minute audio-tapes and having another trained observer record incidences of minimal verbal stimuli, probes, and confrontations.

Observer Reliability

Trained observers recorded the frequency of target behaviors for 15 one-minute intervals. For each one minute interval observers either agreed or disagreed on the number of target behaviors recorded. The procedure employed to determine interjudge reliability was to compute the percent of agreement between two independent observer's records. Percent agreement was computed as the number of agreements divided by the number of agreements and disagreements combined x 100. Three types of reliability data were gathered on the observers as shown in Table 1. First, during the two feedback treatments, a second observer made a simultaneous observational record during six randomly

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Insert Table 1 about here

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selected pre-treatment interviews. Interobserver agreement varied from 87% for head nods to 98% for confrontations. Second, 12 randomly selected post-treatment interviews were videotaped and an independent rater observed and recorded the frequency of head nods. Percent interobserver agreement was 85% for head nods. Third, 12 randomly selected fifteen-minute audio tapes of the post-treatment interviews

were rated a second time by an independent rater. Percent interrater agreement ranged from 80% for minimal verbal stimuli to 95% for total number of confrontations. The relatively low interrater agreement for minimal verbal stimuli could have been influenced by the variation in quality of audio reproduction of the post-treatment interviews, along with the high frequency of occurrence of this target behavior. The reliability data are quite high, and are probably due to the extensive pre-training and practice the observers received, along with the unambiguous definitions of the target behaviors.

Data Analysis

A two-way fixed effects multivariate analysis of variance (Tatsuoka, 1971) was employed to analyze the data. The multivariate analysis program (Clyde, Cramer, & Sherin, 1966) was computed using a CDC 6600 computer. The program provided multivariate F ratios and probability levels of main and interaction effects as well as univariate F ratios corresponding to each variable. The multivariate test of significance used was the Wilks Lambda Criterion. The level of significance was set at the .05 level of confidence on the multivariate F test. Significant multivariate results were followed by post-hoc multiple discriminant analysis procedures (Klecka, 1975).

RESULTS

Results of the Tests of the Hypotheses

As shown in Table 2, differences between field-independent and field-dependent subjects in the use of the four interview skills was nonsignificant F (4, 47) = .261, as was the Cognitive Style X Treatment interaction, F (16/144) = .819. Of particular importance to the purpose of this investigation was a comparison of the treatment conditions. In this regard, the multivariate F was significant, F (16/144) = 2.853,

$p < .001$, indicating the training factors were significantly different on the response measures.

Insert Table 2 About Here

Post-Hoc Analysis

All analyses revealed no significant relationships between cognitive style and any of the independent or dependent measures. Therefore the data from field-independent and field-dependent subjects are combined for the post-hoc analysis.

A multiple discriminant analysis was performed on the factor found significant in MANOVA. The analysis resulted in four discriminant functions discriminating the levels of the training methods factor. Table 3 contains the analysis of the criterion variables for the five experimental groups. Rao's approximation to chi-square indicated that only the first discriminant function was significant ($\chi^2 = 44.65$, df = 16, $p < .001$). The criterion variables did effectively discriminate the five experimental groups F (16, 159) = 3.0, $p < .01$.

Insert Table 3 About Here

Table 3 indicates that while three of the criterion variables had significant univariate F ratios, only one of these variables--confrontations--made an important contribution to the significant discriminant root. Probes made a marginal contribution, while minimal verbal stimuli and head nods were unimportant contributors.

Figure 1 contains further results of the multiple discriminant analysis on the significant discriminant function. As shown in Figure 1,

the canonical correlation between the set of criterion variables and the training methods was $R_c = .68$, indicating a common variance of 46% for that discriminant function.

Of particular importance to the present investigation was the finding, shown in Figure 1, that feedback in combination with the instructional methods was relatively more important than the same instructional methods without feedback in teaching confrontations, and to a lesser extent, probes.

Insert Figure 1 About Here

An additional interpretation of Figure 1 is that overall, programmed instruction was relatively more important than cued-videotape modeling in teaching confrontations and probes.

DISCUSSION

This investigation was proposed as a preliminary applied study to compare the effectiveness of programmed instruction and cued-videotape modeling, with and without behavioral feedback, as instructional techniques to induce behavior change among beginning interviewers. Further, the effectiveness of these training techniques was studied in relation to the cognitive style of the interviewer. The investigation was designed chiefly to probe the general question: Are there any differences in the effectiveness of the training methods in effecting change in trainee's use of minimal encourages to talk (head nods, and minimal verbal stimuli), probes, and confrontations? Particularly important was the comparison of treatments (i.e., programmed instruction and cued-videotape modeling) in which feedback was present or absent for the learner.

Significant differences were found comparing the effectiveness of the training methods on the trainee's production of the target interview behaviors. Results of post-hoc analysis are interpreted as suggesting that trainees who received behavioral feedback in addition to programmed or modeling instruction used more confrontations and probes than trainees who received no behavioral feedback.

The present evidence clearly indicates several implications concerning the effectiveness of the training methods. First, it appears the addition of behavioral feedback to the instructional methods increased their effectiveness in teaching confrontations, and to a lesser extent probes. Several competing explanations may be advanced to account for these findings. One explanation focuses on the complexity of the interview skills to be acquired by the trainees. It could be argued that in terms of complexity, the confrontation was the most difficult and complex skill to be learned, followed by the probe and minimal encourages to talk, respectively. Findings from the present study would suggest that behavioral feedback to a trainee concerning his performance becomes increasingly important as the interview skills to be learned become more complex.

Another explanation centers around the frequency of use of the interview skills. A review of the feedback information given to trainees indicated that only one confrontation occurred during the initial pre-treatment interviews. However, all trainees in the same interviews exhibited head nods and minimal verbal stimuli, with almost half exhibiting probes. This information suggests that the confrontation skill may have been novel to the trainees (i.e., occurred with a low frequency in the real world), and it's possible the trainees who received feedback indicating their non-use of the confrontation skill

were more motivated to focus primarily on using it in the second interview. It might be noted here that the lack of opportunity to use the confrontation skill probably resulted in it's low frequency of occurrence relative to the frequency of other interviewing skills.

Second, the results suggest programmed instruction was more effective than cued-videotape modeling in teaching confrontations, and to a lesser extent probes. This finding is consistent with results reported by DiMattia and Zimmer (1972) who concluded that videotape modeling was not as effective as programmed instruction since modeling presented the trainee with a passive training technique, not requiring subjects to interact with the training materials.

Bandura (1971) has suggested that one of the principle component functions in observational learning involves attentional processes. In the present study an attempt was made to control the trainees' attention in one respect by providing visual and auditory cues which focused the observers attention on the distinctive features of the behavior modeled. However, it is possible that trainees in the modeling instructional treatments who were not forced to interact with the training materials, simply lacked the interest or desire to carefully attend to the presentation.

Another factor which may have influenced the results of this investigation, involves characteristics of the model. It has been abundantly documented in social-psychological research (Bandura, 1969; Campbell, 1961) that models who are high in prestige, power, intelligence, and competence are emulated to a considerably greater degree than models of subordinate standing. It may be that the observers in the present study did not perceive the model in the videotape program as exhibiting

the kind of characteristics necessary for imitation.

If elaborate and expensive methods of training, such as cued-video tape modeling, are shown to be as or less effective than programmed instruction, then the latter is more efficient. As Thoresen (1969) has suggested, perhaps future research can incorporate a cost-benefit analysis as a measure of "meaningful significance".

In the present study there was a failure to find any interactive effects between the subject aptitude investigated (cognitive style) and the training methods. These findings are in contrast to what might have been predicted by Thomas (1971) and Toomey (1972), who found field-dependent subjects more responsive to perceptual modeling treatments, and Koran (1969) who reports field-independent subjects as profiting more from symbolic than perceptual modeling. It may be possible that the aptitude measure employed in this investigation, the Group Embedded Figures Test, did not accurately identify field-independent and field-dependent subjects. Using the individually administered Embedded Figures Test may have been a more valid measure of the aptitude investigated and would have provided more extensive and accurate norms for subject selection.

Further research is needed to determine if the interview skills learned by the trainees were performed appropriately. In the final analysis exhibiting interviewer skills is less important than being able to accurately discriminate when to use the correct interview skill during a complex interviewing process. The systematic investigation of different sequencing and mode of presenting feedback, along with using extended training programs is suggested.

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TABLE 1

Per Cent Interobserver Agreement for
Head Nods, Minimal Verbal Stimuli, Probes, and Confrontation

Behavioral Category	Feedback Treatment[1]	Videotapes[2]	Audiotapes[3]
Head Nods	87	85	
Minimal Verbal Stimuli	92		80
Probes	91		94
Confrontations	98		95

[1] Based on independent ratings of 6 randomly selected, fifteen-minute interviews by two raters during the first interview of the two feedback treatments.

[2] Based on independent ratings of 12 randomly selected fifteen-minute videotape segments of post-treatment interviews by two raters.

[3] Based on independent ratings of 12 randomly selected fifteen-minute audiotape segments of post-treatment interviews by two raters.

TABLE 2

Summary of Multivariate Analysis of Variance

Source of Variation	Degrees of Freedom	F	P
Instructional Methods	16/144	2.853	<.001
Cognitive Style	4/47	.261	NS
Interaction	16/144	.819	NS

TABLE 3

Means, Univariate F Tests, and Discriminant Weights of the Criterion Variables

Variables	Means					Univariate F[a]	Discriminate Weights[b]
	Programmed Instruction	Programmed Instruction and Feedback	Cued-Videotape Modeling	Cued-Videotape Modeling and Feedback	Control		
Head Nods	33.6	10.8	33.3	37.0	28.5	.95	.02
Minimal Verbal Stimuli	21.7	30.3	15.2	25.4	15.3	2.65*	.02
Probes	4.8	6.4	2.8	5.0	1.6	5.03**	.20
Confrontations	.2	1.6	.3	.4	.2	6.96**	.75

[a] df = 4/50.

[b] $F = 3.0$, df = 16/159, $p < .01$. Function I : $\chi^2 = 44.65$, df = 16, $p < .001$.

*$p < .05$

**$p < .01$

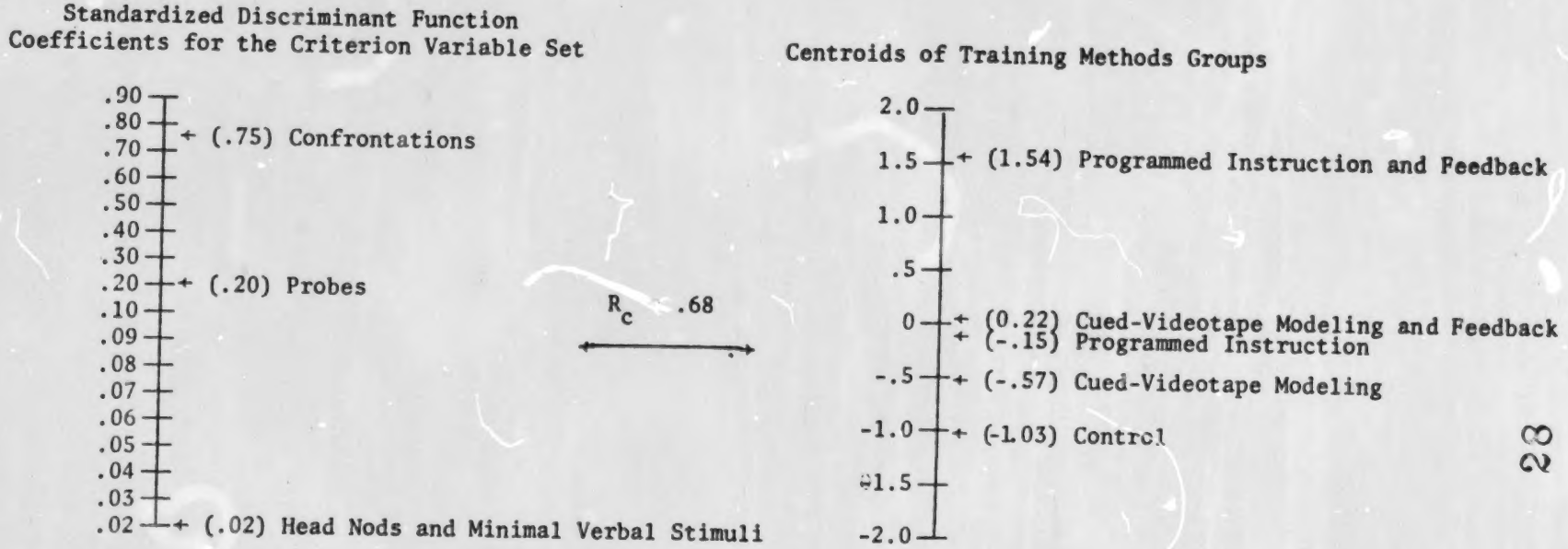

Figure 1. Results of the multiple discriminant analysis on the significant discriminant function.

FOOTNOTES

The research presented is based on a doctoral dissertation submitted at Indiana University, 1975.

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